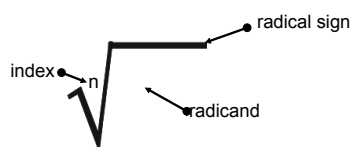


5.5 Roots of Real Numbers



Simplify

$$\sqrt{36} = 6 \quad \text{principal root}$$

Solve

$$\sqrt{x^2} = \sqrt{36}$$

$$x = \pm 6$$

$$\sqrt{75}$$

$$\begin{array}{c} 25 \overline{) 75} \\ \underline{50} \\ 25 \end{array}$$

$$\sqrt{25 \cdot 3}$$

$$5\sqrt{3}$$

$$\sqrt{24}$$

$$\begin{array}{c} 6 \overline{) 24} \\ \underline{36} \\ 0 \end{array}$$

$$2\sqrt{6}$$

$$\sqrt{32}$$

$$\begin{array}{c} 4 \overline{) 32} \\ \underline{16} \\ 16 \end{array}$$

$$2\sqrt{8}$$

$$\begin{array}{c} 4 \overline{) 8} \\ \underline{4} \\ 4 \end{array}$$

$$4\sqrt{2}$$

$$16 \cdot 2$$

$$4\sqrt{2}$$

$$\sqrt[3]{27} = 3$$

$$27$$

$$\begin{array}{c} 9 \overline{) 27} \\ \underline{27} \\ 0 \end{array}$$

$$3\sqrt{3}$$

$$\sqrt{16x^3}$$

Handwritten notes: x^3 above three 'x's, with the first two circled and the third boxed. Below, $4|x|\sqrt{x}$ is written in red.

$$-\sqrt{9x^6}$$

Handwritten note: $-3x^3$ in red.

$$\pm \sqrt{(q^3 + 5)^4}$$

Handwritten note: $\pm (q^3 + 5)^2$ in red.

$$\sqrt[4]{x^8 y^{12} z^4}$$

Handwritten note: $x^2 y^3 z$ in red.

$$\sqrt[3]{-27p^6}$$

$$-3p^2$$

$$\sqrt[5]{243a^{10}b^3}$$

$$3a^2\sqrt[5]{b^3}$$

$$\sqrt{-4}$$

Not \mathbb{R}

$$\sqrt[3]{-8}$$

$$-2$$

$$\sqrt[6]{t^7}$$
$$t \sqrt[6]{t}$$

HW

p248

31, 43, 49, 30-54 x3 (Multiples of 3)